REMARKS/ARGUMENTS

Amendments in General

1. Claim 1 has been amended to include the limitation that the opening in the body of the device is a first opening located near the first end of the muzzle brake. This first end is the location where the muzzle brake is attached to a muzzle end of a firearm. Support for this amendment can be found in Figures 3 and 4 of the application as filed.

2. Claim 2 has been amended to clarify the feature of the invention that each of the radial gas holes has a perimeter and extend from the central bore to the outer surface. Claim 2 has also been amended to include the limitation that the radial gas holes are located next to the first opening, but away from the first end of the muzzle brake. Support for this amendment can be found in Figures 3 and 4 of the application as filed.

3. Claim 9 has been amended to include the limitation of the opening in the body of the device being a first opening located near the first end of the muzzle brake. Support for this amendment can be found in Figures 3 and 4 of the application as filed. Claim 9 has also been amended to include the limitation that the first gas hole perimeter is configured to overlap the perimeter of the second gas hole. Support for this limitation can also be found in Figures 3 and 4 of the application as filed.

4. Claim 10 has been amended to include the limitation of the opening in the body of the device being a first opening located near the first end of the device, and that this first opening is formed in an arrangement where the perimeter of the first radial gas hole is configured to overlap the perimeter of the second radial gas hole and the perimeter of the second radial gas hole is configured to overlap the perimeter of the first radial gas hole and the perimeter of a third radial gas hole. Support for these clarifications and limitations are found in Figures 3 and 4 of the application as filed.

5. Claim 13 has been amended to clarify the limitation that the opening in the body of the device is a first opening located near the first end of the device and that this opening is configured to have a longitudinal dimension and a lateral dimension. The longitudinal dimension is longer than the lateral dimension. This claim has also been amended to include the limitation that the radial gas holes are located further from the first end than the first opening, and that the first opening is the opening nearest the first end. Support for these clarifications are found in Figures 3 and 4 of the application as filed.

6. Claim 16 has been amended to include the limitation that the opening in the body of the device is a first opening located near the first end of the device. This claim has also been amended to clarify the features of the first and second radial gas holes. Support for these amendments can be found in Figures 3 and 4 of the application as filed.

Claim Rejections - 35 USC §102

7. The Examiner rejected claims 1, 2, 3, and 13 under §102(b) as being anticipated by U.S. Patent No. D285,238 to Cellini. The Examiner maintains that the Cellini patent discloses a muzzle brake comprising a cylindrical body having a longitudinal dimension greater than a lateral dimension, and a plurality of gas holed linearly disposed along a longitudinal axis of the body.

8. The Examiner also rejected claims 1, 2, 3, and 13 as being anticipated by U.S. Patent No. 4,967,642 issued to Mihaita. The Examiner maintains that Mihaita discloses a muzzle brake comprising a cylindrical body having a central bore, at least one opening having a longitudinal dimension greater than a lateral dimension, and a plurality of gas holes linearly disposed along a longitudinal axis of the body.

9. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d. 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 828 F.2d 1226,1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). MPEP § 2131.

10. Claims 1 and 13 of the present application have each been amended to include the limitation that the elongated opening is the opening nearest the first end of the muzzle brake. This elongated opening is important to the present invention in that the positioning of the elongated opening as the aperture closest to the attachment with the muzzle provides for greater dispersion of gasses without reflection of gasses back towards the shooter as is found in the prior art embodiments.

11. Neither, Cellini nor Mihaita disclose this feature, therefore neither of these references anticipate this invention.

12. The Cellini patent describes an elongated slot, presumably as a portion of the overall ornamental design, as a part of its muzzle brake. In the Cellini design, the openings that are closest to the first end of the muzzle brake are smaller round openings. These smaller openings will be the first openings through which the gas is dispersed. When the gas passes through these smaller holes, the gas will impinge upon the walls of these holes. The gas will then be reflected back towards the shooter and the shooter will perceive an increased amount of noise.

12. In the Mihaita device, the elongated openings are likewise positioned away from the muzzle connecting portion of the muzzle brake behind a set of smaller holes which are

positioned to aim the gasses back towards the shooter according to Figure 1A of the '642 patent. The structure that is described in this patent is significantly different from the structure described in the present application and the desired result is exactly opposite the desired result in the present application.

13. The present invention is a muzzle brake that is substantially quieter than these prior art type of muzzle brakes. This reduction in noise perceived by the shooter is achieved by creating elongated first openings through which the escaping gasses can be dispersed. These longer openings provide for a longer escape path with a decreased amount of gas reflected back towards the shooter.

14. Neither the Cellini reference nor the Mihaita reference include this feature, therefore neither of these references anticipate the present invention.

15. Claim 13 has also been amended to include the limitation of the muzzle brake having a plurality of elongated first openings defined within the outer surface of the bore and positioned circumvolving around the outer surface of the bore near the first end of the muzzle brake.

16. Neither the Cellini reference nor the Mihaita reference disclose this feature, therefore neither of these references anticipate this invention.

17. Claim 13 has also been amended to include the limitation of the muzzle brake having a plurality of radial gas holes located proximate to the first openings and away from the first end of the muzzle brake. Neither the Cellini reference nor the Mihaita reference disclose this feature, therefore this claim is not anticipated by the prior art.

18. Claims 2 and 3 depend from claim 1. In as much as claim 1 is not anticipated, claims 2 and 3 are therefore not anticipated either.

Claim Rejections - 35 USC §103

19. The Examiner has rejected claims 9, 10, and 16 under §103(a) as being unpatentable (obvious) over either Cellini or Mihaita in view of Kleinguenther .

19. The Examiner maintains that combining either the Cellini or Mihaita devices with the intersecting multiple radial holes as is shown in Kleinguenther to create longitudinal slots would have been obvious and would produce the present invention. Applicant respectfully disagrees.

20. "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when

combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." MPEP § 706.02(j).

21. There is no suggestion to combine these references to arrive at the combination that describes the present invention. While the Cellini and Mihaisa devices do have generally elongated openings, the location of these elongated openings, is different from the location of the elongated openings described in the present invention. This difference is crucial to the success of the applicant's invention.

22. The elongated openings in the Cellini and Mihaita devices are not located nearest to the first end of the muzzle brake. Likewise, the Kleinguenther device does not describe first openings that are longitudinally elongated. Therefore, this combination does not include all of the claimed elements of the present invention and a prima facie case of obviousness has not been found

23. As described in the background section of the present application, prior art muzzle brakes reduce kickback by dissipating propellant gasses away from the muzzle end of a firearm. In devices such as those shown in the Cellini and Mihaita patents, gases are dispersed through openings having relatively small longitudinal dimensions that are located near the muzzle connection portion of the firearm. As gasses pass through these prior art devices, the moving gasses impinge upon a portion of the muzzle brake and are reflected back towards the shooter. This reflecting results in the amount of noise perceived by the shooter being much greater and the gun sounding much louder with the muzzle brake attached than without the muzzle brake attached to the firearm.

24. In the present invention, longer first openings facilitate the passage of gasses away from the end of the muzzle and away from the location of the shooter. The longer openings provide a longer path for gasses to escape and decrease the amount of gas that impinges upon the body of the muzzle brake and is reflected back towards the shooter. This decrease in reflected gasses results in significantly less noise perceived by the shooter.

25. Neither Cellini, Mihaita nor Kleingunther describe or disclose the feature of longitudianally elongated slots of the invention being located nearest the first or muzzle connecting portion of the muzzle brake.

26. The Cellini patent describes an elongated slot, presumably as a portion of the overall ornamental design of the muzzle brake. In the Cellini design, the first openings through which gas would be dispersed are the smaller holes that are located nearer the first end of the muzzle brake. As described in the present application, these smaller holes would cause gas to impinge upon the surface of the muzzle brake and to be pushed back towards the shooter, resulting in an

increase in noise perceived by the shooter. This result, and the structure which creates this result, are objects that the present invention seeks to overcome.

27. The elongated longitudinal slots of the present invention are designed to facilitate the passage of gasses away from the shooter, thus preventing an increase in the amount of noise perceived by the shooter. These elongated slots are not found and are specifically taught away from by the Cellini patent.

28. In the Mihaita device, the elongated openings are positioned away from the muzzle connecting portion of the muzzle brake behind a set of smaller holes that are positioned to aim the gasses back towards the shooter according to Figure 1A of the '642 patent. The structure that is described in this patent is significantly different from the structure described in the present application and the desired result is exactly opposite the result described in the present application.

29. The Kleingunther device has openings that are laterally elongated rather than longitudinally elongated. This device teaches away from utilizing larger elongated holes to allow gasses to escape and instead utilizes a design that forwards gas to a nozzle portion that is intended to stabilize the bullet as it passes through the muzzle brake.

30. None of these devices teach nor disclose the presence of elongated openings near the muzzle connecting portion of a muzzle brake. None of these devices teach reflecting gasses away from a shooter using elongated openings. In fact, these devices teach away from such a combination. The prior art teaches utilizing smaller holes to disperse gasses radially. The present invention teaches that elongated first openings allow for dispersion of gasses in a way that prevents the reflection of the gasses back towards the shooter. This is not taught in the prior art.

31. Since the prior art teaches against the combination of elements shown in the present invention, no reasonable expectation of success can exist. Therefore, the present invention cannot be merely an obvious modification of these prior art references.

32. This combination of the prior art references fails to disclose all of the limitations of the present invention. The claims, as amended, include the limitation of the first elongated opening being the opening closest to the first end of the muzzle brake. This limitation is not found in any of these or in the combination of these references. This feature is an important functional part of the present invention.

33. The location of the elongated first opening near the first end of the muzzle brake enables the propellant gasses to be dissipated more quickly, more evenly and with less associated noise than the other prior art muzzle brakes. The elongated shape of this first opening provides a longer path for the gasses to travel along. Limiting the size of subsequent openings maintains

the power of the gas pushing the projectile. In these devices, the balance between reducing noise, reducing kick back and maintaining levels of power must be struck. The invention in this application performs these three functions in a way that is superior to those ways described in the prior art.

34. None of these prior art references disclose structures that anticipate all of the limitations of the claims of this invention and provide for a balance of reducing noise, reducing kickback and maintaining power of the projectile. The combination as disclosed in the present invention is a novel and non-obvious invention that performs all of these functions.

Conclusion

For the aforementioned reasons, Applicant hereby respectfully maintains that the present invention is not anticipated by or an obvious modification of the prior art and hereby respectfully requests that the Examiner remove his objections and allow this application as amended to proceed toward allowance.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

If the Examiner feels it would advance the application to allowance or final rejection, the Examiner is invited to telephone the undersigned at the number given below.

DATED this 24th day of October, 2002.

Very respectfully,

DEREK H. MAUGHAN
Reg. No. 52, 007
(208) 345-1122

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

Claim 1 has been amended as follows:

1. (Amended) A muzzle brake for attachment to a firearm muzzle, said muzzle brake for dissipating a recoil force created by discharging said firearm, said muzzle brake comprising:

a body having a first end adapted for attachment to said muzzle, an outer surface extending from said first end to a second end along a generally longitudinal axis, a central bore having a desired diameter extending [therethrough] through said body along said longitudinal axis, said body defining at least one first elongated opening [within said body] near said first end, said first elongated opening having a longitudinal dimension and a lateral dimension [wherein] said body configured so that said first elongated opening is nearest said first end, and said longitudinal dimension is greater than said lateral dimension, said first elongated opening connecting said central bore to said outer surface.

Claim 2 has been amended as follows:

2. (Amended) The muzzle brake of claim 1 wherein said body further defines a plurality of secondary radial gas holes, said radial gas holes located within said body proximate to said first opening and distal from said first end each of said radial gas [hole] holes having a perimeter and extending radially from said central bore to said outer surface.

Claim 9 has been amended as follows:

9. (Amended) The muzzle brake of claim 3 wherein said first elongated opening is comprised of a first radial gas hole defined within said body, said first radial gas hole having a first radial gas hole perimeter, and extending from said central bore to said outer surface, said first radial gas hole connected to a second radial gas hole defined within said body, said second radial gas hole having a second radial gas hole perimeter, and extending radially from said central bore to said outer surface, [wherein] said first radial gas hole perimeter configured to overlap [overlaps] said second gas hole perimeter.

Claim 10 has been amended as follows:

10. (Amended) The muzzle brake of claim 3 wherein said first elongated opening is a first radial gas hole defined within said body, said first radial gas hole having a first radial gas hole perimeter, and extending from said central bore to said outer surface, said first radial gas hole positioned proximate to a second radial gas hole defined within said body, said second radial gas hole having a second radial gas hole perimeter, and extending from said central bore to said outer surface, said second radial gas hole positioned proximate to a third gas hole defined within said body, said third gas hole having a third gas hole perimeter and extending from said central bore to said outer surface, [wherein] said first radial gas hole perimeter configured to overlap [overlaps] said second gas hole perimeter, and said second gas hole perimeter configured to overlap [overlaps] said first gas hole perimeter and said third gas hole perimeter.

Claim 13 has been amended as follows:

13. (Amended) A muzzle brake for use with a firearm having a muzzle, said muzzle brake for reducing recoil while discharging said firearm, said muzzle brake comprising:

a cylinder having a first end adapted for attachment to a firearm, an outer surface extending from said first end to a second end along a longitudinal axis, a central bore, [a plurality of radial gas holes, and at least one] a plurality of elongated first [opening] openings defined within said outer surface near said first end and positioned circumvolving along said outer surface near said first end, said first openings configured to have [having] a longitudinal dimension and a lateral dimension [wherein] said longitudinal dimension [is] being greater than said lateral dimension[;] and a plurality of radial gas holes, said radial gas holes located proximate to said first openings and distal from said first end; [wherein] said first end [is] configured for attachment to the muzzle of a firearm; [wherein] said central bore [is] having [of] a desired diameter extending through the cylinder along said longitudinal axis; [wherein] said radial gas holes [are] linearly disposed along the longitudinal axis of the cylinder, each gas hole having a perimeter and a diameter smaller than said central bore, and extending radially from said central bore to said outer surface.

Claim 16 has been amended as follows:

16. (Amended) The muzzle brake of claim 13 wherein each of said first [opening is] openings are formed by a first radial gas hole defined within said cylinder, said first radial gas hole having a first radial gas hole perimeter and extending from said central bore to said outer surface, said first radial gas hole connected to a second radial gas hole defined within said cylinder said second radial gas hole having a second radial gas hole perimeter, and extending radially from said central bore to said outer surface cylinder, [wherein] said first radial gas hole perimeter configured to overlap [overlaps] said second gas hole perimeter.

CERTIFICATE OF MAILING

I HEREBY CERTIFY that this correspondence is being deposited with the United States Postal Service on the below date as first class mail in an envelope addressed to:

Honorable Commissioner of Patents
Washington, DC 20231

DATE: 10/24/02

Shannon M. Wilson